



Fact Sheet

United States Nuclear Regulatory Commission
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Oversight of Nuclear Power Plants

Background

The primary safety consideration in the operation of any nuclear reactor is the control and containment of radioactive material, under both normal and accident conditions. Numerous controls and barriers are installed in nuclear plants to protect workers and the public from the effects of radiation.

Both the industry and the NRC have roles in providing and maintaining this protection. The NRC establishes regulations and guides for the construction and operation of nuclear reactors. Utilities licensed by the NRC are directly responsible for designing, constructing, testing, and operating their facilities safely. The NRC, through its licensing and oversight programs, assures that its licensees are meeting their responsibilities.

The NRC also approves plant-specific technical specifications which must be followed by the plant operators to ensure that the proper combination of safety-related equipment is available to safely shut down the plant in the event of an accident. The NRC has full authority to take whatever action is necessary to protect public health and safety and may demand immediate licensee actions, up to and including a plant shutdown.

The NRC implemented a new oversight and assessment program at all nuclear plants in the spring of 2000. The new oversight process uses more objective, timely, and risk-informed criteria in assessing plant performance, while seeking to more effectively and efficiently regulate the industry. A description of the new oversight process is available at www.nrc.gov/reading-rm/doc-collections/nuregs/staff/ (NUREG-1649) while plant-specific performance results are available at www.nrc.gov/NRR/OVERSIGHT/ASSESS/index.html on NRC's web site.

Inspection Program

Under the Atomic Energy Act of 1954, NRC has the authority to inspect nuclear power plants to protect public health and safety. The NRC inspection program assesses, through scrutiny of carefully selected samples, whether activities are properly conducted and equipment is properly

maintained to ensure safe operations. Inspectors monitor the licensee's activity, provide inspection findings to the licensee's management, and conduct follow up inspections to ensure that the licensee has taken corrective action. The NRC periodically assesses the overall effectiveness of its inspection program for operating reactors.

Reactor inspections are conducted primarily by resident and region-based inspectors. Under a program initiated in 1977, resident inspectors are stationed at each nuclear power plant. There are at least two resident inspectors assigned to each site. Resident inspectors provide first-hand, independent assessment of plant conditions and performance.

Resident inspectors live in the area of the nuclear power plant and maintain offices at the plant during regular business hours. In addition, resident inspectors spend a portion of their time at the plant during weekends and evenings. Resident inspectors significantly increase the agency's onsite monitoring of the plants and reduce the time to respond to events at the plant. The activity of the resident inspector is supplemented by engineers and specialists from the nearest regional office and headquarters staff who perform inspections in a wide variety of engineering and scientific disciplines. Region-based inspectors operate out of four regional offices located in or near Philadelphia, Atlanta, Chicago, and Dallas. In response to an event at a specific plant, NRC may send a special team with staff from both NRC headquarters and regional offices.

The inspection specialists review plant security, emergency planning, radiation protection, environmental monitoring, periodic testing of plant equipment and systems, fire protection, construction activities, and other more specialized areas. During the course of a year, NRC specialists may conduct 10 to 25 routine inspections at each nuclear power plant, depending on the activities at the plants and problems that may occur. The special team inspections may focus on a specific plant activity, like maintenance or security, or a team may be sent to the plant to look at a specific operating problem or accident.

Because it would be impossible to review every aspect of licensee performance, the NRC systematically evaluates their adequacy through selective inspections. The new inspection program selects an appropriate inspection sample based on its potential risk, past operational experience, and regulatory requirements.

The frequency, scope, and depth of the inspection program varies for operating reactors depending on their performance. The program consists of three major elements: (1) baseline inspections - the minimum required at all plants; (2) supplemental inspections - performed at those plants with performance below established thresholds; and (3) special inspections that focus on a specific issue at all or a group of plants.

Inspection results are used in NRC's overall evaluation of licensee performance. When a safety problem or failure to comply with requirements is discovered, the NRC requires prompt corrective action by the licensee reinforced, if necessary, with appropriate enforcement action. All inspections and findings are documented in written reports. These reports are sent to the utility and are made available to the public.

In February 1989, the Commission announced a policy of cooperation with States which allows States to observe, and in some cases participate in, NRC inspections at reactor facilities.

Performance Indicators

Paralleling the inspections are a series of performance indicators, which are objective measurements of a plant's safety performance. Performance indicators are submitted quarterly by licensees to the NRC and indicate how well a plant is performing when measured against established thresholds for each area. These performance indicators are posted on the reactor oversight process web page at www.nrc.gov/NRR/OVERSIGHT/index.html on NRC's web site.

Performance Assessment

The NRC uses inspection findings together with objective performance indicators to assess plant performance. An “action matrix” provides consistent agency action based on licensee performance in seven cornerstones of safety: (1) initiating events, (2) mitigating systems, (3) integrity of barriers to release of radioactivity, (4) emergency preparedness, (5) occupational radiation safety, (6) public radiation safety, and (7) physical protection.

The Performance Indicators and the assessment of inspection findings are posted to the NRC web site, using the color notation of their significance-green, white, yellow, or red. Green indicates that performance is acceptable while red represents unacceptable performance. The NRC addresses any significant performance issues, as necessary, and follows up any other performance issues until they are corrected.

The results of reactor oversight are documented in inspection reports and performance indicators. Inspection reports, correspondence, and other information about the performance of reactor facilities are available to the public in the agency's document management system (ADAMS). Inspection reports, issued on each inspection, are also available on the reactor oversight process web page.

For more information on inspection or performance assessment, see the oversight section of our How We Regulate web page.

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